

Interdisciplinarity: A Conceptual Reading from the Educational Approach

*Emerson Augusto de Medeiros**

Abstract

This essay aims at presenting conceptual reflections about the interdisciplinarity from the educational approach. It is a bibliographical research grounded on the educational literature. In order to delimit the discussion, we focused on the studies of Ivani Catarina Arantes Fazenda and Hilton Japiassu. Even though we understand that there is no closed concept in itself about interdisciplinarity in the field of Education, we conceive it as a new attitude towards knowledge. We defend that interdisciplinarity is effective in the movement of the school curriculum, while it contributes to the establishment of a dialogical relationship between teachers, students, knowledge and social reality. We emphasize that, in Education, the main objective of interdisciplinarity is to implement the human formation of the subject, which is based on its awareness of the world.

Key Words: Interdisciplinarity. Knowledge. Schooling. General education.

* Universidade Federal Rural do Semi-Árido – UFERSA. Mossoró, Rio Grande do Norte, Brasil. E-mail: emerson.medeiros@ufersa.edu.br. Orcid: <http://orcid.org/0000-0003-3988-3915>

Interdisciplinaridade: Uma Leitura Conceitual a partir do Enfoque Educacional

Resumo

Este ensaio tem como objetivo principal apresentar reflexões conceituais acerca da interdisciplinaridade a partir do enfoque educacional. Trata-se de um trabalho bibliográfico apoiado na literatura educacional. De forma a delimitar a discussão, centramo-nos nos estudos de Ivani Catarina Arantes Fazenda e de Hilton Japiassu. Mesmo compreendendo que não há um conceito fechado em si acerca da interdisciplinaridade no âmbito da Educação, neste texto, a concebemos como uma nova atitude frente ao conhecimento. Defendemos que a interdisciplinaridade se efetiva no movimento do currículo escolar, ao passo em que contribui para o estabelecimento de uma relação dialógica entre professores, alunos, conhecimento e realidade social. Enfatizamos que, na Educação, o objetivo principal da interdisciplinaridade é concretizar a formação humana do sujeito, a qual se alicerça por meio de sua conscientização frente ao mundo.

Palavras-chave: Interdisciplinaridade. Conhecimento. Educação Escolar. Formação Humana.

Interdisciplinaridad: Una Lectura Conceptual Del Enfoque Educativo

Resumen

El objetivo principal de este ensayo es presentar reflexiones conceptuales sobre la interdisciplinariedad basadas en el enfoque educativo. Esta es una obra bibliográfica apoyada por la literatura educativa. Con el fin de delimitar el debate, nos centramos en los estudios de Ivani Catarina Arantes Fazenda y Hilton Japiassu. Incluso dándose cuenta de que no hay un concepto cerrado en sí mismo sobre la interdisciplinariedad en el ámbito educativo, en este texto, lo concebimos como una nueva actitud hacia el conocimiento. Sostenemos que la interdisciplinariedad es eficaz en el movimiento del currículo escolar, contribuyendo al establecimiento de una relación dialógica entre profesores, estudiantes, conocimiento y realidad social. Destacamos que, en la educación, el principal objetivo de la interdisciplinariedad es realizar la formación humana del sujeto, que se basa en su conciencia en la faz del mundo.

Palavras Clave: Interdisciplinariedad. Conocimiento. Educación Escolar. Formación Humana.

Introduction

We have seen in the area of Education in recent years a considerable number of normative documents that justify the need to provide Education and teaching, in particular, in an interdisciplinary perspective. Thus, the term interdisciplinarity has been concentrated both in the scope of the official documents that rule Brazilian education, as well as in the discourse and in the daily life of teachers, education department, school administrators, pedagogical coordinators and other education professionals. Thus, we consider that interdisciplinarity an importante issue in the area of Education, since its participation, at least in the normative, intentional and discursive dimensions, is visible.

Thus, this article aims to present conceptual reflections on interdisciplinarity based on a educational perspective. In order to do that, we have made an effort to develop the concept of interdisciplinarity based on the educational literature that, in the last decades, confirms understandings for its definition. This effort was made to record the concept of interdisciplinarity from the studies of Ivani Catarina Arantes Fazenda and Hilton Japiassu, Brazilian researchers who since the 1970s have been engaged in developing research and theoretical productions on the subject.

It is worth mentioning that the main objective of this essay in presenting conceptual reflections about interdisciplinarity, with support in publications in the area of Education, especially in the studies of Ivani Catarina Arantes Fazenda and Hilton Japiassu, does not discredit the efforts made by researchers from other scientific areas. On the contrary, we emphasize that the understanding of interdisciplinarity in educational literature derives from the commitment produced in history by scholars of various areas of knowledge. However, we warn that it is fundamental to delimit the existing conceptualization, since we understand that there are, in conceptual parameters, divergences that, instead of contributing to an understanding about interdisciplinarity, aggravate misunderstandings and inconsistencies, making it impossible to become effective in teaching and Education.

Regarding the methodological dimensions of this essay, we clarify, once again, that we are based on the literature review, mainly in Fazenda (2002), Fazenda (2012a), Fazenda (2013) and Japiassu (1976) in PhD theses that research the interdisciplinarity as a study dimension (FEISTEL, 2012; YAMAMOTO, 2013, FEITOSA, 2014; MEDEIROS, 2019).

Having said these introductory words, we organized the rest of the text in three moments: in the first moment, we will discuss, in a historical approach, the development of the interdisciplinarity in the area of Education. We will talk about the genesis of interdisciplinarity in the educational context up to the present historical moment. In the second moment, we will discuss the concept of interdisciplinarity from the educational approach based on studies of Ivani Catarina Arantes Fazenda and Hilton Japiassu. In the third moment, we will present the conclusions of the study, especially, as we understand it in Education.



Interdisciplinarity In Education - Historical Dimension

For Gusdorf (1976), historically, scientific knowledge was produced and transmitted to humanity, in part, in an uncritical, fragmented and dissociated form of reality. As a result, the consequences for society have taken places in diferente ways: the human being became individualistic; the populations of the different nations can not coexist, often, in harmony; social relations are built on the dimension of consumerism, among others.

In other words, the growth achieved for society with the advancement of scientific knowledge does not match the potentialities of its evolution. World wars, the concentration of material goods on a small part of the population, environmental disasters, air pollution, misery and hunger in some Western countries, to name a few, are examples of the fact that, despite growth of scientific knowledge in the world, we do not always achieve social successes for living with each other on the planet.

The French researcher says that together with the production of scientific knowledge a large number of “experts” have been formed around the world who, guided by the myopia of fragmented and specialized knowledge, can not understand anything that goes beyond their field of professional activity (GUSDORF, 1976). However, according to Gusdorf (1976), these subjects are assigned the responsibility of developing the main technological tools for the social, cultural and economic growth of nations.

According to Fazenda (2002), interdisciplinarity emerged in the educational environment as a guideline for the demands placed on social problems, which have been described (some of them) in the previous paragraphs. The author argues that in the late 1960s, in France and Italy, student movements pleaded that university education should present responses to society, given that issues in the social environment could not be absent from academia. Rigid and disciplinary teaching, university formation detached from the social world, the contente-based perspective of academic formation, and the university’s lack of dialogue with external walls are consequences of this scenario.

Motivated by what has been discussed above, in 1969, a commission of university researchers from France, Britain and Germany met in Paris, France, to discuss the institutional reality of the university, its organizational structure and teaching. In the course of the discussions the production of scientific knowledge, its unification as a way to the problems surrounding the university and to the relationship between teaching and research, was under the focus of the dialogues. At this moment, interdisciplinarity was thought as terminology, but because the term was recent in the academy there was no conceptual agreement about it.

Subsequently, in February 1970, a new commission of researchers from universities from all over the world and from various areas of knowledge met in the United States to clarify the concept of interdisciplinarity. As a result, the French researcher Guy Michaud (1911 - 2006) proposed the distinction of interdisciplinarity from five levels of differentiation, namely: disciplinarity, multidisciplinarity, pluridisciplinarity, interdisciplinarity and transdisciplinarity (FAZENDA, 2002).

With the distinction of interdisciplinarity in five levels, it was already possible, in the context of Education, to present conceptual considerations and understandings

about it. In the dissertation of the researcher Ivani Catarina Arantes Fazenda, carried out between 1976 and 1978, at the Catholic University of São Paulo (PUC), there is an explanatory summary about the dialogues held at the meeting at issue during that time. The author emphasizes, among other aspects, the conceptualization of interdisciplinarity with support in the distinction produced by the researcher Guy Michaud. Let's see:

Disciplinarity - scientific set of knowledge with its own characteristics about the plan of education, training, mechanisms, methods, subjects.

Multidisciplinarity - Juxtaposition of diverse disciplines, devoid of any apparent relation between them. Eg: music + math + history.

Pluridisciplinarity - Juxtaposition of more or less neighboring disciplines in the fields of knowledge. Ex : Scientific domain: mathematics + physics.

Interdisciplinarity - existing interaction between two or more disciplines. This interaction can range from the simple communication of ideas to the mutual integration of the leading concepts of epistemology, terminology, methodology, procedures, data and organization concerning teaching and research. An interdisciplinary group consists of people who have received training in different fields of knowledge (disciplines) with their own methods, concepts, data and terms.

Transdisciplinarity - Result of an axiomatics common to a set of disciplines (eg, Anthropology considered as 'science of man and his works', according to Linton's definition) (FAZENDA, 2002, p. 27, emphasis added).

According to Fazenda (2002), the first conceptualizations about interdisciplinarity approached the work developed within the disciplines with scientific knowledge. The questions of epistemological and methodological nature were the main references for the initial production of the concept of interdisciplinarity. Put differently, the interdisciplinarity doing in Education was associated, in the beginning, to the actions constructed with the scientific knowledge with / between the disciplines.

Also on the historical conceptual construction of interdisciplinarity in September of the year 1970, in Nice (France), there was the seminar entitled "Seminaire sur la Pluridisciplinarité et l'Interdisciplinarité" also with the intention of producing reflections on the very concept. In this event, researchers with different academic backgrounds were present: Jean Piaget (1896 - 1980), Erich Jantsch (1929 - 1980), Marcel Boisot and André Lichnerowicz (1915 - 1998), among others (FAZENDA, 2002).

If we consider the arguments described up to now as a reference, we will realize that the construction of the concept of interdisciplinarity in the educational area was not easy. From the initial moment, reaching the current moment, all over the world, there are researches that point to definitions that are now divergent, sometimes consensual.

Fazenda (2012a) states that in the historical plane we can systematize the construction of the concept of interdisciplinarity in three perspectives. The first one took place – in the decade of 1970 - considering the questions of epistemological order. The way



knowledge has been developed in history has become a concern for most sciences¹. It was necessary, according to the author, to consolidate a new perspective of producing and disseminating scientific knowledge in Education. Interdisciplinarity, through work built between the disciplines, that is, through the actions produced by joining the disciplines would contribute to the non-fragmentation of knowledge and its transmission in an uncritical way.

In the second perspective - 1980s - there was a progression from the epistemological scope to the methodological dimension. Explaining the procedures for joining the disciplines in an educational proposal, as well as their contradictions, was due to a concern in this second perspective of construction of interdisciplinarity in Education. In relation to the third perspective - in the decade of 1990 -, with the evolution of the studies on this subject, the epistemological and methodological questions were widened and a proper theory of the interdisciplinarity in the Education (FAZENDA, 2012a) was added.

In Brazil, interdisciplinarity emerged in the educational field with the studies of Hilton Japiassu, with the work "Interdisciplinarity and Pathology of Knowledge"², having its first edition published in the year 1976; and of Ivani Catarina Arantes Fazenda, according to a recent report, entitled "Integration and Interdisciplinarity in Brazilian Teaching", completed in 1978 (FEISTEL, 2012; FAZENDA, 2012b; FEITOSA, 2014; MEDEIROS, 2019).

According to Fazenda (2002), since the introduction of the term interdisciplinarity in Education of the Country, there has been an increasing proliferation of its use in official documents and in the discourses of Education professionals. The demand to provide an education with an interdisciplinary character has been so great in Brazil since 1970 that Veiga-Neto (1996), in his doctoral thesis, points out the existence of a movement in Brazilian education named "Movement for Interdisciplinarity".

Veiga-Neto (1996) states that after the proliferation of the term interdisciplinarity in Brazilian education, most normative documents of Basic Education and Higher Education emphasize the construction of curricula with interdisciplinarity. He believes that this has created, at a symbolic level, a slogan of the interdisciplinarity as something capable of overcoming some of the problems of teaching in the country, which he sees as a big misconception.

The research produced by Silva and Furlanetto (2011) confirms the statements of Fazenda (2002) and Veiga-Neto (1996) when analyzing official intentions for working with interdisciplinarity from the National Curricular Parameters for the initial and final years of Elementary and High School. The authors perceive that interdisciplinarity is present in the set of curricular parameters that guide the curricula of these stages of Basic Education.

Researchers understand that in the early years of Elementary Education, interdisciplinarity is addressed in curriculum documents as the relationship between different fields of knowledge. For the realization of this relationship, they find that the normative documents emphasize the integration between the contents of diverse areas to be taught

1 Here we understand that the author refers to humanity sciences.

2 The work of the Brazilian researcher is part of his dissertation thesis done in France.

in the school environment (SILVA; FURLANETTO, 2011). As facilitator for the integration between the contents is the organization of educational actions in interdisciplinary projects, based on subjects of study.

For the final years of Elementary School, in addition to perceiving that interdisciplinarity is conceptualized as the relation between different areas of knowledge, as in the National Curricular Parameters for the initial years of Elementary School, Silva and Furlanetto (2011) identified the emphasis on valuation of the organization of the contents to be worked from the thematic axes, which would be a way for the practice of interdisciplinarity. Otherwise, they understand that the relationship between the different fields of knowledge is associated with dialogue at the moments of educational actions among teachers, students and social reality.

In reference to the National Curricular Parameters for High School, Silva and Furlanetto (2011) think that interdisciplinarity is addressed with more emphasis than in the other documents analyzed. According to the authors, the term is mentioned 124 times. As in other curricular documents, the relation between the different fields of knowledge stands out as the dominant conception of the understanding of interdisciplinarity, but the terms “contextualization” and “globalization” interconnect with the construction of the relation among knowledge areas.

Generally, we consider that the study of Silva and Furlanetto (2011) found that interdisciplinarity appears in the normative documents analyzed as something that is established in the work between the disciplines. This conception is close to the understanding of the interdisciplinarity in the educational area in the initial period of the construction of its concept. However, we make it clear that other concepts were disseminated in the educational literature in Brazil and in the world.

In Brazilian context, we understand that there are predominance of several concepts about interdisciplinarity. At this point, we will mention two because they are, in my view, the most common in debates and in national research about the theme. The first one comes from the studies of Ivani Catarina Arantes Fazenda and Hilton Japiassu³. The concept advocated by these researchers defines interdisciplinarity as a new attitude towards knowledge (FAZENDA, 1996; LÜCK, 2007; TRINDADE, 2008; FAZENDA, 2012a; FAZENDA, 2012b). The second one relates to a Marxist-based theoretical-philosophical current that states that interdisciplinarity is a necessity and a possibility for the transformation of society, especially the problems that permeate educational practice. In this theoretical line, it is mentioned that interdisciplinarity is effective in being able to break away with the perspective of social exclusion and alienation promoted by social relations (unequal) in history, which are under the influence of the organization of the social system guided by capitalism (FRIGOTTO, 2008).

In the next moment, we will present conceptual reflections in the scope of Education regarding interdisciplinarity from the understanding developed by the studies of Ivani

³ Japiassu (1976) does not use the term “attitude” to refer to interdisciplinarity. However, in the author’s work there is a new perspective of thinking about the production of knowledge and its construction in education, among other things, which is not done without a new “attitude”. The thought of Ivani Catarina Arantes Fazenda has as one of the main foundations, the Brazilian author/researcher. It is from his studies that Fazenda (2002), bases his dissertative research, as well as other academic productions about interdisciplinarity.



Catarina Arantes Fazenda and Hilton Japiassu. At the same time, we will confirm some widespread criticism in Brazilian educational thinking by researchers from critical and post-critical perspectives on the understanding of interdisciplinarity endorsed by the aforementioned authors. Thus, we aim to broaden the debate about the theme and to deepen the dialogues that are held for its concept.

Interdisciplinarity – An Account About Its Concept In The Area Of Education

In some of her works published in the country (FAZENDA, 1996; FAZENDA, 2002a) the researcher Ivani Catarina Arantes Fazenda says that interdisciplinarity can be considered as a new attitude towards the question of knowledge. From this statement, we ask: what, for the author, would be a new attitude towards the question of knowledge?

We understand that any concept existing in a determining field of knowledge has a history. It carries the marks of the historical moment in which it was produced. Even evolving, and thus undergoing changes in the meanings and significations we construct, does not separate itself from the subjects, social contexts and historical time with which it was involved.

In order to have a more informed understanding about the concept that emphasizes being a new attitude towards the question of knowledge, it is essential to talk about the moment in which this concept was developed. As we say, in the 1960s and early 1970s there were many social movements in the world⁴. According to Fazenda (2012a), in this historical period, through popular organizations, a contraposition to the forms of social structure that, among other points, attributed to Modern Science the causes of the present social problems. All of this happened in a marked way.

The fragmentation of knowledge both in its production process and in its mode of socialization in educational institutions led society to the knowledge myopia. A new perspective of producing, disseminating and acting with scientific knowledge was fundamental.

Fazenda (2012a), based on this reality, says that a new attitude towards knowledge was essential. This posture would be established through dialogue, the interaction between knowledge produced and social reality, exchanges of experiences of different sciences in the process of knowledge construction, as well as their methods and research techniques. With this scenario, the author complements that interdisciplinarity was born as a necessity to overcome the fragmented thought of the human being from formative processes with compartmentalized knowledge, which required a new attitude towards knowledge.

We explain that the concept of interdisciplinarity which defines it as a new attitude towards the question of knowledge, in our opinion, emerges from the scope of the challenge of Modern Science by society. Promises of scientific development, social equity, human well-being, among other aspects, were challenged by many dimensions of socie-

⁴ Although we mentioned the student movements in another moment, we remember the birth of feminist movements, of urban and rural social movements, among others.



ty, promises that Modern Science emphasized and which, with their advancement, did not come true.

Fazenda (2012a) recognizes that developing a critical attitude towards reality is a determining condition for thinking about its transformation and solving its problems. The critical position of the author is partly due to the overcoming of the fragmentation of knowledge.

In the area of Education, the overcoming of the fragmentation of knowledge is effected by the attitude of applying it interactively in the educational environment. Thus, the school curriculum has a great weight. For a long time, the curricular policies were planned in isolation with little participation of the sectors and subjects that will experience them. Interdisciplinarity transcends the embedded curriculum and places it in a movement of affirmation of reality and of the constructive actors of curricular actions. The dialogue between the disciplines is carried out horizontally, making the curriculum an intercultural space of formation and production of knowledge.

With these arguments, we say that the attitude towards the issue of knowledge, understood as the concept of interdisciplinarity coming from Fazenda studies (2012a), is also a principle of interdisciplinarity. The attitude, in our understanding, is associated with the challenger of the traditional ways of providing educational, in which there has not been any attempt of changing the status quo. It also mean innovation through actions that build knowledge with reference to the social reality of the subjects (students, teachers, among others) that make the school community.

It should be emphasized that the concept of interdisciplinarity developed by Fazenda (2012a) has its origins in studies from researchers who, like her, emphasize the demand to overcome the fragmentation of scientific knowledge, both in its development and in the dimension of their socialization in educational units.

Hilton Japiassu is one of the authors who influences Ivani Catarina Arantes Fazenda's work, as previously reported⁵. In his first book, "Interdisciplinarity and Pathology of Knowledge", published in the first edition in 1976, the author says that there is a crisis in Modern Science, which causes problems to all terrestrial entities, mainly in the dimensions of production and diffusion of scientific knowledge. Therefore, he suggests that interdisciplinarity is a way to overcome them (at the level of scientific knowledge), and to develop new social practices among the subjects that live on the earth.

In lecture to Education, the scholar states that there was a collapse of the knowledge due to the increasing specialization of the disciplines, resulting in the fragmentation of the education and the human emptying of the formation. For this reason, the author states that one of the approaches of interdisciplinarity in the educational field is to be against "a fragmented knowledge, pulverized in a growing multiplicity of specialists, in which each lock themselves up as they were escaping from true knowledge" (JAPIASSU, 1976, p. 43).

Japiassu (1976) advocates a change in the organization of education systems, breaking with the fragmented unidisciplinary vision that works knowledge in a linear way. Thus, the author does not deny the specialties and objectivity of each disciplinary area,

5 Another scholar who strong influence on Ivani Catarina Arantes Fazenda's though is the french George Gusdorf.



but oppose the conception that knowledge is produced in isolated fields, as if theories could be constructed in particular spheres and the education of the subject was given only on a theoretical plane.

With this understanding of interdisciplinarity coming from the thinking of Japiassu (1976), Fazenda (2012a) considers interdisciplinarity as a new attitude towards the question of knowledge. Because for transforming any existing reality is fundamental, above all, actions, which do not occurs without a new attitude of the subject in relation to reality.

Generally speaking, there is much criticism in Education coming from critically and post-critically-based thinkers, as we report, about the conceptualization developed by the studies of Ivani Catarina Arantes Fazenda and Hilton Japiassu. Among the most widespread is the one from Veiga-Neto (1995), Tonet (2009) and Jantsch and Bianchetti (2011).

These thinkers believe that interdisciplinarity in education has developed under a limited pedagogical discourse. In the opinion of these scholars, the pioneering authors who approach the theme - Hilton Japiassu and Ivani Catarina Arantes Fazenda - devalue social, political and cultural issues. The interdisciplinarity for Japiassu (1976), Fazenda (2002) and Fazenda (2012a) has been conceived in a level that limits the subjects and remove them from society and their historical condition to which they belong.

According to Veiga-Neto (1995), Tonet (2009) and Jantsch and Bianchetti (2011), there is a concern with almost exclusively with the subject, as if the problems arising from the fragmentation of knowledge could be solved by an isolated process of mode of production in capitalism. The power relations and domination are set aside and the emphasis is on the cognitive and internal processes. A false autonomy is attributed to the subjects and absolute responsibility for what happens in their way of life.

Tonet (2009) also states that some pedagogical views deal with interdisciplinarity as a phenomenon that emerged in isolation from society, that is, they analyze the theme as if it were simply a natural result of the social process and do not perceive or accept the relation of ontological dependence of the knowledge in relation to their material conditions.

Jantsch and Bianchetti (2011) argue that knowledge in education goes hand in hand with the forms of production of the neoliberal model, and should not be considered apart from History. His understanding is that interdisciplinarity in education must be reflected not only as a “didactic model” to be followed, but as a school practice that is about aspects of ethical and political nature, suggesting for its implementation an educational project centered on an intentionality in which teachers, students and the school community meet. Educational project that emphasizes social transformation and understanding aspects related to human domination.

Veiga-Neto (1995), also defends the impossibility of the subjects are not aware of their mastery of their knowledge. From this point of view, the fragmentation of school knowledge is not determined by the subjects who takes part of the Education process, given that according to educational history we were formed to think disciplinarily and the knowledge acquired at schools is based on relations of power.

In the author’s mind, we have in education a formation and a disciplinary knowledge that we can not extinguish by acts of will and by epistemological decrees that alter ways of thinking that are deeply rooted in us.

The disciplinarity of school knowledge was incorporated in Education and “became our own way of thinking and, in the end, engenders our relations with everything around us” (Veiga-Neto 1995: 111). Changing this picture requires implications that go far beyond “tinkering (epistemologically) in the disciplinarity” of knowledge.

The author under discussion states that, apart the problems presented about the understanding of interdisciplinarity under the “subject view”, a conceptual perspective developed by Ivani Catarina Arantes Fazenda and Hilton Japiassu (according to the author), there is in Education a plurality of theories that support educational discourses, especially the curriculum. It is almost impossible to find a consensus between these theories, be they traditional, technical, critical or post-critical.

According to Veiga-Neto (1995), on discursive essays on the production of anthropogenic products, the research is based on the theoretical perspectives of Fazenda (1996, 2002, 2012a) and Japiassu (1976) of knowledge, in which the practical bias has reached the maximum the development of actions and multidisciplinary practices.

However, we agree with Fazenda (2002), Fazenda (2012a) and Japiassu (1976) about the understanding of interdisciplinarity to the studies, considering that it is necessary to situate it in Education, linking it to teaching and learning processes. It is necessary, in our view, to see the educational processes when carried out in the formal settings of teaching in a contextual (or micro-local) dimension, that is, the classroom. By no means do we deny the macrostructural, discursive and power dimensions that guide the school curriculum, even though we defend a critical education, but we can not limit educational processes always to this dimension (macro-structural and/or discursive).

We see that conducting the interdisciplinarity in education also dealing with the many obstacles that takes part of the educational practice, which include the visible and invisible issues of the curriculum and everyday school life. In other words, the plurality of each context is decisive for us to think of interdisciplinarity in Education. The search attitude to find elements that help and facilitate the construction of knowledge by the subjects of the educational processes, without doubt, is the first step to develop the practice of interdisciplinarity.

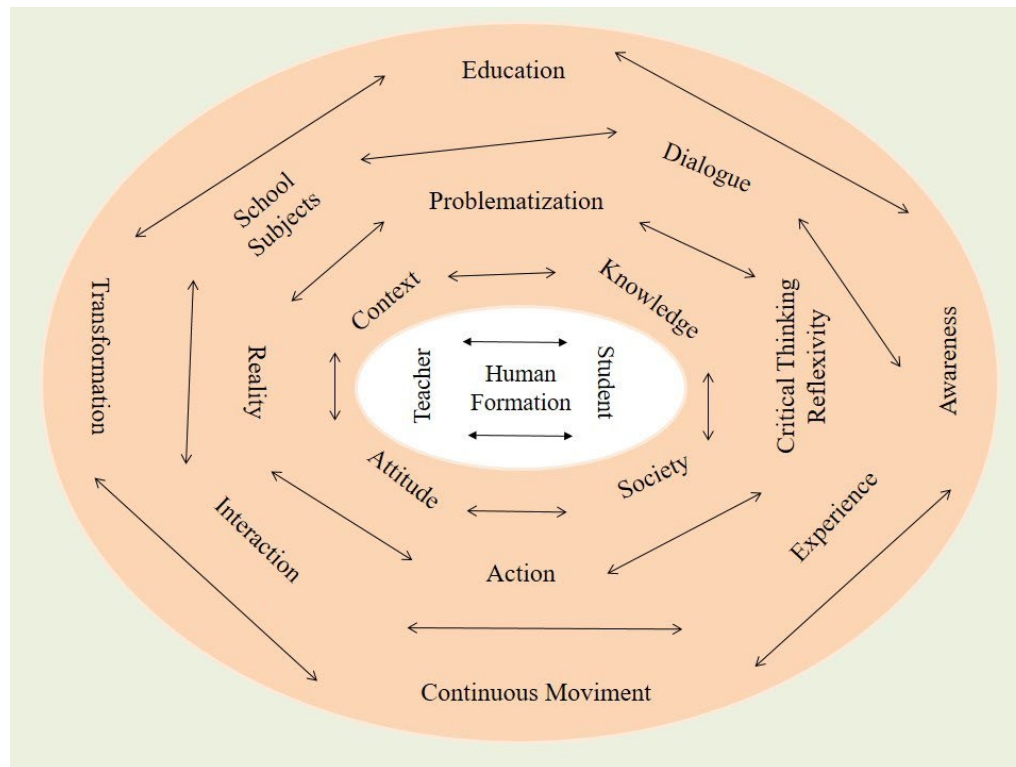
We also state that Ivani Catarina Arantes Fazenda and Hilton Japiassu do not propose, for the practice of the educational work with the interdisciplinarity, the elimination of the disciplines, an aspect diffused in part of the educational literature. We stress that interdisciplinarity is done through work with the disciplines. It aims involve them with the knowledge.

In the classroom, interdisciplinary practices can be started, as we explain, starting from a new attitude towards knowledge by teachers and students. Attitude that permeates the study and questioning of knowledge and its relation to social practice, in a process that demands problematization, critical thinking and reflexivity in the face of reality. All this requires dialogue and interaction between disciplines, as well as the contextualization of the curriculum the goes beyond school walls. It is worth emphasizing that in Education, the main objective of interdisciplinarity is to garante human formation, which is based on its awareness of the world.



As a way of systematizing our understanding of the concept of interdisciplinarity in Education, we produced a figure⁶ (Figure 1) that illustrates our thinking about interdisciplinary work in the school context, more precisely in the classroom.

Figure 1: Interdisciplinarity in the School Context



Source: Elaborated by the author, 2019.

With support in previous statements and in what is illustrated in figure 1, we state that interdisciplinarity in Education, and particularly in the school context and in the classroom, is embodied from the relation between teacher and student. It is done in the exchange of experiences, in the interaction developed with social reality, as well as among the disciplines of the curriculum. In this sense, it takes place in “acts of learning”⁷ - another motive that confirms its concept linked to attitude. It is a permanent movement that seeks the transformation of the subjects involved in the educational process.

The openness to problematization of what is considered as knowledge, in a critical and reflexive way, is also a component of interdisciplinary work, since it is different from what some education theorists have pointed out. And, it is not reduced to the “view of the subject”. It attempts to raise awareness because its object, as we have already said, is human formation (FAZENDA, 2012a). Considering interdisciplinarity only from the point of view of the subject is to reduce it to the domains of abstraction and not of action, characteristic of interdisciplinary work.

⁶ The arrows, colors and circles that make up Figure 1 are based on Yamamoto (2013).

⁷ Term made up by Thiesen (2013).

In explanatory parameters, we warned, based on Fazenda (2002) and Japiassu (1976), that there is no closed concept in itself about interdisciplinarity in Education, since if it existed, it would not carry the prefix *inter* (movement) in structure.

Finally, we hope that the concept of interdisciplinarity, partly explained in this essay based in Ivani Catarina Arantes Fazenda and Hilton Japiassu, will be added to new essays, either to complement our discussion or to look at aspects that we can not understand throughout the document.

Our effort was once again to demonstrate understandings about interdisciplinarity. Even with the current use of the word in the educational area, we see, as researchers, that it is fundamental to deepen their debate, because, in this way, we will produce advances in literature and perhaps in their practice in the school context.

Final Considerations

At the end of the discussion undertaken in this essay, we begin with an affirmation that we have already pointed out at the beginning of the text (abstract) and at the end of the last section: interdisciplinarity as a theme in the area of Education does not have a closed concept in itself. Different authors, supported by several “theoretical-philosophical line of thoughts”, understand it under multiple perspectives. In this text, we have emphasized the concept of interdisciplinarity based on the studies of Ivani Catarina Arantes Fazenda and Hilton Japiassu⁸, authors who frame it as a new attitude towards the question of knowledge.

The attitude we are talking about is to overcome self-indulgence in the school context, which is often confined to teaching disconnected from the world outside of school and from the social problems that surround school institutions (elementary and higher education), and educational actions, the production of knowledge that has social reality as a starting point. The curriculum, in this perspective, alternates among different domains (cultural, social, political, scientific, among others) and develops in an intercultural line.

We also emphasize the importance of dialogue among teachers, students and the school community in promoting educational actions. Interdisciplinarity in the dialogical movement is carried out in “acts of learning”. It is an attitude that seeks dialogue among school disciplines, it is an attitude that seeks to exchange life experiences among the subjects that participate in the educational processes, it is an attitude that tries to develop new knowledge in a critical and reflective way.

Finally, we emphasize that the main objective of interdisciplinarity in Education is to provide human formation of the subject, which is based on their awareness of the world. We must not forget that interdisciplinary work in school contexts is centered on the subjects and their relationship with the world, aiming, above all, at the permanent promotion of their education. It is (the human formation) the focus of interdisciplinarity in the educational area.

8 Once again, we clarify that Japiassu (1976) does not relate the term “attitude” to the concept of interdisciplinarity. For him, a new attitude towards knowledge is essential, which brings us to the word “attitude”. This term is used by Ivani Catarina Arantes Fazenda that is anchored in the work of Hilton Japiassu.



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Emerson Augusto de Medeiros

PhD in Education by the Graduate Program in Education of the State University of Ceará - UECE. Adjunct Professor, Department of Human Sciences, Federal Rural Semi-Arid University - UFERSA, Mossoró - RN.



